



## Jacopo Liberatori



### EDUCATION AND TRAINING

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#### PhD in Aeronautics and Space Engineering

*Università degli Studi di Roma "La Sapienza"* [ 2020 – Current ]

**Level in EQF** : EQF level 8

**National classification** : Third Cycle

#### Publications:

- Liberatori J. et al., "Injection of LOX spray in Methane cross-flow RANS modeling uncertainty quantification", AIAA Propulsion and Energy 2021 Forum (2021)
- Liberatori J. et al., "Uncertainty quantification in RANS of LOX-CH4 pintle injector", 13<sup>th</sup> Asia-Pacific Conference on Combustion 2021, Abu Dhabi, UAE (2021)
- Liberatori J. et al., "Uncertainty Quantification Analysis of RANS of Spray Swirling Jets", Eighteenth International Conference on Flow Dynamics (2021)
- Liberatori J. et al., "Uncertainty quantification in RANS of LOX-CH4 pintle injector", 43<sup>rd</sup> Meeting of the Italian Section of the Combustion Institute, Ischia, Italy (2021)

#### Work Experience:

- January 2022 - now  
**EVACPRO – URome, European Space Agency (ESA)**  
*Chemical Modelling of Reactions and Processes in Propellant Systems*  
PIs : Prof. F. Nasuti, Prof. D. Bianchi, Prof. P.P. Ciottoli
- October 2020 - now  
**Development of CFD combustion models within the OpenFOAM toolbox**  
*LOX/CH4 combustion characterization of a pintle-injector liquid rocket engine thrust chamber under subcritical conditions*  
PI : Prof. M. Valorani

**Teaching:**

- February 2022 - now  
**Teaching assistant in Laboratorio di Propulsione Aeronautica**  
*Laboratory Course in Bachelor's Degree in Aerospace Engineering*
- October 2020 - now  
**Combustion Thesis Co-Supervisor**  
*Master's Degree in Aeronautical Engineering*
- October 2020 - now  
**Combustion Thesis Co-Supervisor**  
*Bachelor's Degree in Aerospace Engineering*

**Master's Degree in Mechanical Engineering**

*Università degli Studi di Roma "La Sapienza" [ 2018 – 2020 ]*

**Final grade** : 110/110 cum Laude - **Level in EQF** : EQF level 7

**National classification** : Second Cycle

**Thesis** : Numerical analysis of a double swirl burner under isothermal conditions  
Advisor : Prof. P.P. Ciottoli

**Attended Classes:**

Fluid Machinery in Energy Conversion Systems

Misure Meccaniche e Termiche

Control Systems

Geometria Differenziale

Economics of Technology and Management

Introduction to Modelling and Simulation of Turbulent Transport Processes

Sistemi Propulsivi Aeronautici

Motori a Combustione Interna

Turbomacchine

Computational Thermo-Fluids Analysis in Fluid Machinery

Interazione Macchine Ambiente

Advanced Energy Conversion Systems

Dynamics of Electrical Machines and Drives

Aeroacoustics

### Bachelor's Degree in Mechanical Engineering

*Università degli Studi di Roma "La Sapienza"* [ 2015 – 2018 ]

**Final grade** : 110/110 - **Level in EQF** : EQF level 6

**National classification** : First Cycle

**Thesis** : Metodi di raccolta e analisi di dati per la gestione degli impianti a fonti rinnovabili

Advisor : Prof. A. Corsini

#### **Attended Classes:**

Analisi Matematica I

Analisi Matematica II

Geometria

Fisica I

Fisica II

Chimica

Disegno di Macchine

Modellazione Solida

Meccanica Razionale

Metallurgia Meccanica

Fisica Tecnica

Fluidodinamica

Elettrotecnica

Meccanica dei Solidi

Calcolo Numerico

Meccanica Applicata alle Macchine

Elementi Costruttivi delle Macchine

Sistemi Energetici

Impianti Industriali

Tecnologia Meccanica

Elettronica Applicata

Idraulica Applicata

**High School Diploma (scientific studies)**

*Collegio San Giuseppe - Istituto De Merode* [ 2010 – 2015 ]

**Final grade** : 100/100 cum Laude

## LANGUAGE SKILLS

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Mother tongue(s):

**Italian**

**English**

**LISTENING: C1 READING: C1 WRITING: C1**

**SPOKEN PRODUCTION: C1**

**SPOKEN INTERACTION: C1**

**Spanish**

**LISTENING: B2 READING: B2 WRITING: B1**

**SPOKEN PRODUCTION: B1 SPOKEN INTERACTION: B1**

**Romanian**

**LISTENING: B2 READING: B2 WRITING: B1**

**SPOKEN PRODUCTION: B1 SPOKEN INTERACTION: B1**

## DIGITAL SKILLS

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Working knowledge with the following OS: Mac, Windows, Unix-based / Programming skills in: Python, MATLAB, Julia, C++, Wolfram Mathematica / Working knowledge with the following CFD softwares: OpenFOAM, Ansys FLUENT / Working knowledge with the following CAD softwares: SolidEdge, SolidWorks, Autodesk Fusion360 / Working knowledge with the following CFD post-processing softwares: Tecplot, ParaView / Working knowledge with the multidisciplinary design optimization platform modeFRONTIER / Working knowledge with the chemical kinetics software Cantera